



EBERLINE

SERVICES

0061948

October 25, 2003

Mr. Steve Trent
Fluor Hanford Inc.
825 Jadwin Avenue
Richland, WA 99352



Reference: **P.O. #630**
Eberline Services R3-09-033-7581, SDG H2330

Dear Mr. Trent:

Enclosed is the data report for one water sample designated under SAF No. F03-007 received at Eberline Services on September 8, 2003. The sample was analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa Mannion

Melissa C. Mannion
Senior Program Manager

RECEIVED
JUN 21 2004
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MCM

Enclosure: Data Package

Analytical Services
2030 Wright Avenue
P.O. Box 4040
Richmond, California 94804-0040
(510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
www.eberlineservices.com

1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H2330 was composed of one water sample designated under SAF No. F03-007 with a Project Designation of: 200-PW-2/200-PW-4 OU – QC Sampling.

The sample was received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist.

2.0 ANALYSIS NOTES

2.1 Tritium Analyses

The LCS and method blank were not scaled to the H-3 nominal aliquot of 0.01 L. No problems were encountered during the course of the analyses.

2.2 Carbon-14 Analyses

The LCS and method blank were not scaled to the C-14 nominal aliquot of 0.03 L. No problems were encountered during the course of the analyses.

2.3 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.4 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.5 Technetium-99 Analyses

The LCS percent recovery was (128%) greater than the laboratory protocol limits (80 to 120%), but within the contract limits (70 to 130%). No other problems were encountered during the course of the analyses.

2.6 Iodine-129 Analyses

No problems were encountered during the course of the analyses.

2.7 Total Uranium Analyses

No problems were encountered during the course of the analyses.

2.8 Neptunium-237 Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Melissa Mann
Melissa C. Mannion
Senior Program Manager

10/25/3
Date

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2330

SDG 7581
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG_H2330

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Melissa Mann
Prepared by

Melissa Mann
Reviewed by

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-TOC
Version 3.06
Report date 10/25/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2330

SDG 7581
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2330

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

REPORT GUIDES

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2330

SDG 7581
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2330

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

REPORT GUIDES

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2330

SDG 7581

Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford

Contract No. 630

Case no SDG H2330

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R309033-01	B17HR3	200-PW-4/Retention Basin	WATER		F03-007	F03-007-020	09/02/03 12:15
R309033-02	Lab Control Sample		WATER		F03-007		
R309033-03	Method Blank		WATER		F03-007		
R309033-04	Duplicate (R309033-01)	200-PW-4/Retention Basin	WATER		F03-007		09/02/03 12:15
R309033-05	Spike (R309033-01)	200-PW-4/Retention Basin	WATER		F03-007		09/02/03 12:15

LAB SUMMARY

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Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-LS

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2330

QC SUMMARY

SDG 7581

Contact Melissa C. Mannion

Client Hanford

Contract No. 630

Case no SDG H2330

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7581	F03-007-020	B17HR3	WATER		9.25 L		09/08/03 6	R309033-01		7581-001
		Method Blank	WATER					R309033-03		7581-003
		Lab Control Sample	WATER					R309033-02		7581-002
		Duplicate (R309033-01)	WATER		9.25 L		09/08/03 6	R309033-04		7581-004
		Spike (R309033-01)	WATER		9.25 L		09/08/03 6	R309033-05		7581-005

QC SUMMARY

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2330

SDG 7581

Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford

Contract No. 630

Case no SDG H2330

TEST	MATRIX	METHOD	PREPARATION	ERROR	PLANCHETS ANALYZED						QUALI-	
			BATCH	2σ %	CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	FIERS
Alpha Spectroscopy												
NP	WATER	Neptunium in Water	7078-090	5.0	1			1	1	1/1		
Beta Counting												
SR	WATER	Total Strontium in Water	7078-090	10.0	1			1	1	1/1		
TC	WATER	Technetium 99 in Water	7078-090	10.0	1			1	1	1/1		
Gamma Spectroscopy												
I	WATER	Iodine 129 in Water	7078-090	5.0	1			1	1	1/1		
Kinetic Phosphorimetry (KPA)												
U_T	WATER	Uranium, Total in Water	7078-090	9.0	1			1	1	1/1		
Liquid Scintillation Counting												
C	WATER	Carbon 14 in Water	7078-090	10.0	1			1	1	1/1	1/1	X
H	WATER	Tritium in Water	7078-090	10.0	1			1	1	1/1	1/1	X
NI_L	WATER	Nickel-63 in Liquid	7078-090	10.0	1			1	1	1/1		

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.

Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

PREP BATCH SUMMARY

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2330

SDG 7581

Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford

Contract No. 630

Case no SDG H2330

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	MATRIX SAF No	PLANCHET	TEST	SUF- FIX	ANALYZED	REVIEWED	BY	METHOD
R309033-01	B17HR3		7581-001	C		10/07/03	10/21/03	MWT	Carbon 14 in Water
09/02/03	200-PW-4/Retention Basin	WATER	7581-001	H		10/09/03	10/21/03	MWT	Tritium in Water
09/08/03	F03-007-020	F03-007	7581-001	I		10/16/03	10/21/03	MWT	Iodine 129 in Water
			7581-001	NI_L		10/17/03	10/21/03	MWT	Nickel-63 in Liquid
			7581-001	NP		10/11/03	10/21/03	MWT	Neptunium in Water
			7581-001	SR		10/02/03	10/21/03	MWT	Total Strontium in Water
			7581-001	TC		10/13/03	10/21/03	MWT	Technetium 99 in Water
			7581-001	U_T		10/17/03	10/21/03	MWT	Uranium, Total in Water
R309033-02	Lab Control Sample		7581-002	C		10/07/03	10/21/03	MWT	Carbon 14 in Water
		WATER	7581-002	H		10/09/03	10/21/03	MWT	Tritium in Water
		F03-007	7581-002	I		10/16/03	10/21/03	MWT	Iodine 129 in Water
			7581-002	NI_L		10/17/03	10/21/03	MWT	Nickel-63 in Liquid
			7581-002	NP		10/11/03	10/21/03	MWT	Neptunium in Water
			7581-002	SR		10/02/03	10/21/03	MWT	Total Strontium in Water
			7581-002	TC		10/13/03	10/21/03	MWT	Technetium 99 in Water
			7581-002	U_T		10/17/03	10/21/03	MWT	Uranium, Total in Water
R309033-03	Method Blank		7581-003	C		10/07/03	10/21/03	MWT	Carbon 14 in Water
		WATER	7581-003	H		10/09/03	10/21/03	MWT	Tritium in Water
		F03-007	7581-003	I		10/17/03	10/21/03	MWT	Iodine 129 in Water
			7581-003	NI_L		10/18/03	10/21/03	MWT	Nickel-63 in Liquid
			7581-003	NP		10/11/03	10/21/03	MWT	Neptunium in Water
			7581-003	SR		10/02/03	10/21/03	MWT	Total Strontium in Water
			7581-003	TC		10/13/03	10/21/03	MWT	Technetium 99 in Water
			7581-003	U_T		10/17/03	10/21/03	MWT	Uranium, Total in Water
R309033-04	Duplicate (R309033-01)		7581-004	C		10/07/03	10/21/03	MWT	Carbon 14 in Water
09/02/03	200-PW-4/Retention Basin	WATER	7581-004	H		10/09/03	10/21/03	MWT	Tritium in Water
09/08/03	F03-007		7581-004	I		10/16/03	10/21/03	MWT	Iodine 129 in Water
			7581-004	NI_L		10/18/03	10/21/03	MWT	Nickel-63 in Liquid
			7581-004	NP		10/11/03	10/21/03	MWT	Neptunium in Water
			7581-004	SR		10/02/03	10/21/03	MWT	Total Strontium in Water
			7581-004	TC		10/13/03	10/21/03	MWT	Technetium 99 in Water
			7581-004	U_T		10/17/03	10/21/03	MWT	Uranium, Total in Water
R309033-05	Spike (R309033-01)		7581-005	C		10/08/03	10/21/03	MWT	Carbon 14 in Water
09/02/03	200-PW-4/Retention Basin	WATER	7581-005	H		10/09/03	10/21/03	MWT	Tritium in Water
09/08/03	F03-007								

WORK SUMMARY

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SAMPLE DELIVERY GROUP H2330

SDG 7581

Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford

Contract No. 630

Case no SDG H2330

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
C	F03-007	Carbon 14 in Water	C14_CHEM_LSC	1			1	1	1	1	5
H	F03-007	Tritium in Water	906.0 H3_LSC	1			1	1	1	1	5
I	F03-007	Iodine 129 in Water	I129_SEP_LEPS_GS	1			1	1	1		4
NI_L	F03-007	Nickel-63 in Liquid	NI63_LSC	1			1	1	1		4
NP	F03-007	Neptunium in Water	NP237_LLE_PLATE_AEA	1			1	1	1		4
SR	F03-007	Total Strontium in Water	SRTOT_SEP_PRECIP_GPC	1			1	1	1		4
TC	F03-007	Technetium 99 in Water	TC99_TR_SEP_LSC	1			1	1	1		4
U_T	F03-007	Uranium, Total in Water	UTOT_KPA	1			1	1	1		4
TOTALS				8			8	8	8	2	34

WORK SUMMARY

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Form DVD-LWS

Version 3.06

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2330

7581-003

Method Blank

METHOD BLANK

SDG <u>7581</u>	Client/Case no <u>Hanford</u>	SDG <u>H2330</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R309033-03</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7581-003</u>	Material/Matrix <u>WATER</u>	
	SAF No <u>F03-007</u>	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Tritium	10028-17-8	-0.172	9.8	17	400	U	H
Carbon 14	14762-75-5	0.276	0.71	1.2	200	U	C
Nickel 63	13981-37-8	0.378	1.2	2.1	15	U	NI_L
Total Strontium	SR-RAD	0.243	0.34	0.64	2.0	U	SR
Technetium 99	14133-76-7	-0.970	1.7	5.9	15	U	TC
Total Uranium (ug/L)	7440-61-1	0.004	0.015	0.035	0.10	U	U_T
Neptunium 237	13994-20-2	0	0.24	0.34	1.0	U	NP
Iodine 129	15046-84-1	-1.14	2.0	4.5	5.0	U	I

200-PW-2/200-PW-4 OU-QC Sampling

QC-BLANK 45672

METHOD BLANKS

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2330

7581-002

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7581</u>	Client/Case no <u>Hanford</u>	SDG <u>H2330</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R309033-02</u>	Client sample id <u>Lab Control Sample</u>	
Dept sample id <u>7581-002</u>	Material/Matrix <u>WATER</u>	
	SAF No <u>F03-007</u>	

ANALYTE	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	254	16	17	400		H	254	10	100	81-119	80-120
Carbon 14	253	2.7	1.2	200		C	255	10	99	84-116	80-120
Nickel 63	222	4.7	2.4	15		NI_L	228	9.1	97	84-116	80-120
Total Strontium	42.0	1.8	0.59	2.0		SR	41.8	1.7	100	83-117	80-120
Technetium 99	1390	31	5.3	15		TC	1090	44	128	79-121	80-120
Total Uranium (ug/L)	92.0	11	0.001	0.10		U_T	82.5	3.3	112	74-126	80-120
Neptunium 237	49.3	4.3	0.26	1.0		NP	49.6	2.0	99	84-116	80-120
Iodine 129	498	11	9.7	5.0		I	464	19	107	89-111	80-120

200-PW-2/200-PW-4 OU-QC Sampling

QC-LCS 45671

LAB CONTROL SAMPLES

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2330

7581-004

B17HR3

DUPLICATE

SDG <u>7581</u>	Client/Case no <u>Hanford</u>	SDG <u>H2330</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>R309033-04</u>	Lab sample id <u>R309033-01</u>	Client sample id <u>B17HR3</u>
Dept sample id <u>7581-004</u>	Dept sample id <u>7581-001</u>	Location/Matrix <u>200-PW-4/Retention Basin WATER</u>
	Received <u>09/08/03</u>	Collected/Volume <u>09/02/03 12:15 9.25 L</u>
		Custody/SAF No <u>F03-007-020 F03-007</u>

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI- FIERS	RPD %	3σ TOT	PROT LIMIT
Tritium	68.0	95	160	400	U	H	53.7	98	160	U	-		
Carbon 14	26.5	25	40	200	U	C	32.0	24	39	U	-		
Nickel 63	0.072	1.2	2.1	15	U	NI_L	0.576	1.2	2.1	U	-		
Total Strontium	0.082	0.35	0.69	2.0	U	SR	0.360	0.30	0.53	U	-		
Technetium 99	0.444	2.2	5.6	15	U	TC	-0.290	1.7	5.8	U	-		
Total Uranium (ug/L)	0.121	0.023	0.035	0.10		U_T	0.125	0.023	0.035		3	44	
Neptunium 237	0	0.59	0.39	1.0	U	NP	0.152	0.30	0.44	U	-		
Iodine 129	1.06	1.6	3.6	5.0	U	I	-2.68	5.3	12	U	-		

200-PW-2/200-PW-4 OU-QC Sampling

QC-DUP#1 45673

DUPLICATES

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2330

7581-005

B17HR3

MATRIX SPIKE

SDG <u>7581</u>	Client/Case no <u>Hanford</u>	SDG <u>H2330</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
MATRIX SPIKE	ORIGINAL	
Lab sample id <u>R309033-05</u>	Lab sample id <u>R309033-01</u>	Client sample id <u>B17HR3</u>
Dept sample id <u>7581-005</u>	Dept sample id <u>7581-001</u>	Location/Matrix <u>200-PW-4/Retention Basin WATER</u>
	Received <u>09/08/03</u>	Collected/Volume <u>09/02/03 12:15 9.25 L</u>
		Custody/SAF No <u>F03-007-020</u> <u>F03-007</u>

ANALYTE	SPIKE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	ORIGINAL pCi/L	2σ ERR (COUNT)	REC 3σ % (TOTAL)	LMTS (LIMITS)	PROTOCOL LIMITS
Tritium	19500	370	160	400	X	H	21300	850	53.7	98	91	85-115	60-140
Carbon 14	51500	520	120	200	X	C	51100	2000	32.0	24	101	84-116	60-140

200-PW-2/200-PW-4 OU-QC Sampling

QC-MS#1 45674

MATRIX SPIKES

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Report date <u>10/25/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2330

7581-001

B17HR3

DATA SHEET

SDG <u>7581</u>	Client/Case no <u>Hanford</u>	SDG <u>H2330</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R309033-01</u>	Client sample id <u>B17HR3</u>	
Dept sample id <u>7581-001</u>	Location/Matrix <u>200-PW-4/Retention Basin WATER</u>	
Received <u>09/08/03</u>	Collected/Volume <u>09/02/03 12:15</u> <u>9.25 L</u>	
	Custody/SAF No <u>F03-007-020</u> <u>F03-007</u>	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Tritium	10028-17-8	53.7	98	160	400	U	H
Carbon 14	14762-75-5	32.0	24	39	200	U	C
Nickel 63	13981-37-8	0.576	1.2	2.1	15	U	NI_L
Total Strontium	SR-RAD	0.360	0.30	0.53	2.0	U	SR
Technetium 99	14133-76-7	-0.290	1.7	5.8	15	U	TC
Total Uranium (ug/L)	7440-61-1	0.125	0.023	0.035	0.10		U_T
Neptunium 237	13994-20-2	0.152	0.30	0.44	1.0	U	NP
Iodine 129	15046-84-1	-2.68	5.3	12	5.0	U	I

200-PW-2/200-PW-4 OU-QC Sampling

DATA SHEETS

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SUMMARY DATA SECTION

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>10/25/03</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2330

Test NP Matrix WATER
SDG 7581
Contact Melissa C. Mannion

LAB METHOD SUMMARY

NEPTUNIUM IN WATER

ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2330

RESULTS

LAB RAW SUF- Neptunium
SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID 237

Preparation batch 7078-090

R309033-01	7581-001	B17HR3	U
R309033-02	7581-002	LCS (QC ID=45671)	ok
R309033-03	7581-003	BLK (QC ID=45672)	U
R309033-04	7581-004	Duplicate (R309033-01)	- U

Nominal values and limits from method RDLs (pCi/L) 1.0
200-PW-2/200-PW-4 OU-QC Sampling

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/L	L	FAC	TION	%	%	min	keV	KeV	HELD PREPARED	YZED DETECTOR

Preparation batch 7078-090 2σ prep error 5.0 % Reference Lab Notebook 7078 pg. 090

R309033-01	B17HR3	0.44	0.200	43	102	39	10/10/03	10/11	SS-059
R309033-02	LCS (QC ID=45671)	0.26	0.200	72	102		10/10/03	10/11	SS-060
R309033-03	BLK (QC ID=45672)	0.34	0.200	55	102		10/10/03	10/11	SS-061
R309033-04	Duplicate (R309033-01)	0.39	0.200	49	102	39	10/10/03	10/11	SS-062
	(QC ID=45673)								

Nominal values and limits from method 1.0 0.200 20-105 100 180

PROCEDURES REFERENCE NP237_LLE_PLATE_AEA
CP-930 Neptunium from Solids and Water by Extraction
Chromatography, rev 0
CP-008 Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD MDA 0.36 ± 0.15
FOR 4 SAMPLES YIELD 55 ± 25

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 10/25/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2330

Test SR Matrix WATER
SDG 7581
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TOTAL STRONTIUM IN WATER

BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H2330

RESULTS

LAB	RAW	SUF-		Total
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Strontium
Preparation batch 7078-090				
R309033-01		7581-001	B17HR3	U
R309033-02		7581-002	LCS (QC ID=45671)	ok
R309033-03		7581-003	BLK (QC ID=45672)	U
R309033-04		7581-004	Duplicate (R309033-01)	- U

Nominal values and limits from method RDLs (pCi/L) 2.0
200-PW-2/200-PW-4 OU-QC Sampling

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/L	L	FAC	TION	%	%	min	keV	KeV	HELD PREPARED	YZED DETECTOR
Preparation batch 7078-090 2σ prep error 10.0 % Reference Lab Notebook 7078 pg. 090													
R309033-01		B17HR3	0.53	0.500			86		100			30 10/02/03	10/02 GRB-217
R309033-02		LCS (QC ID=45671)	0.59	0.500			90		100			10/02/03	10/02 GRB-217
R309033-03		BLK (QC ID=45672)	0.64	0.500			91		100			10/02/03	10/02 GRB-218
R309033-04		Duplicate (R309033-01) (QC ID=45673)	0.69	0.500			89		100			30 10/02/03	10/02 GRB-219

Nominal values and limits from method 2.0 0.500 35-105 100 180

PROCEDURES REFERENCE SRTOT_SEP_PRECIP_GPC
CP-383 Strontium in Dissolved Solid of < 5.0g Aliquot,
rev 0

AVERAGES ± 2 SD MDA 0.61 ± 0.14
FOR 4 SAMPLES YIELD 89 ± 4

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 10/25/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2330

Test TC Matrix WATER
SDG 7581
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TECHNETIUM 99 IN WATER

BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H2330

RESULTS

LAB RAW SUF- Technetium
SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID 99

Preparation batch 7078-090

R309033-01	7581-001	B17HR3	U
R309033-02	7581-002	LCS (QC ID=45671)	HIGH
R309033-03	7581-003	BLK (QC ID=45672)	U
R309033-04	7581-004	Duplicate (R309033-01)	- U

Nominal values and limits from method RDLs (pCi/L) 15
200-PW-2/200-PW-4 OU-QC Sampling

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/L	L	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED

Preparation batch 7078-090 2σ prep error 10.0 % Reference Lab Notebook 7078 pg. 090

R309033-01	B17HR3	5.8	0.100	90	50	41	10/09/03	10/13	GRB-202
R309033-02	LCS (QC ID=45671)	5.3	0.100	95	50	10/09/03	10/13	GRB-203	
R309033-03	BLK (QC ID=45672)	5.9	0.100	91	50	10/09/03	10/13	GRB-204	
R309033-04	Duplicate (R309033-01) (QC ID=45673)	5.6	0.100	94	50	41	10/09/03	10/13	GRB-207

Nominal values and limits from method 15 0.100 20-105 50 180

PROCEDURES	REFERENCE	TC99_TR_SEP_LSC
CP-021	Preparation of Tc-99m Tracer, rev 2	
CP-002	Q.C. Preparation, rev 4	
CP-003	Addition of Carriers and Tracers, rev 5	
CP-430	Technetium-99 Purification (Water) by Extraction Chromatography, rev 0	
CP-008	Heavy Element Electroplating, rev 7	

AVERAGES ± 2 SD	MDA	5.6 ± 0.53
FOR 4 SAMPLES	YIELD	92 ± 5

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 10/25/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2330

Test I Matrix WATER
SDG 7581
Contact Melissa C. Mannion

LAB METHOD SUMMARY

IODINE 129 IN WATER
GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2330

RESULTS

LAB RAW SUF-
SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Iodine 129

Preparation batch 7078-090

R309033-01	7581-001	B17HR3	U
R309033-02	7581-002	LCS (QC ID=45671)	ok
R309033-03	7581-003	BLK (QC ID=45672)	U
R309033-04	7581-004	Duplicate (R309033-01)	- U

Nominal values and limits from method RDLs (pCi/L) 5.0
200-PW-2/200-PW-4 OU-QC Sampling

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/L	L	FAC	TION	%	%	min	keV	KeV	HELD PREPARED	YZED DETECTOR

Preparation batch 7078-090 2σ prep error 5.0 % Reference Lab Notebook 7078 pg. 090

R309033-01	B17HR3	12	0.250	76	651	44	10/10/03	10/16	XSPEC-016
R309033-02	LCS (QC ID=45671)	9.7	0.250	63	215	10/10/03	10/16	XSPEC-004	
R309033-03	BLK (QC ID=45672)	4.5	0.250	71	845	10/10/03	10/17	XSPEC-004	
R309033-04	Duplicate (R309033-01)	3.6	0.250	74	649	44	10/10/03	10/16	XSPEC-004
	(QC ID=45673)								

Nominal values and limits from method 5.0 0.250 20-105 300 100 180

PROCEDURES REFERENCE I129_SEP_LEPS_GS
CP-530 Iodine-129 Purification, rev.0

AVERAGES ± 2 SD MDA 7.4 ± 8.1
FOR 4 SAMPLES YIELD 71 ± 11

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 10/25/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2330

Test U T Matrix WATER
SDG 7581
Contact Melissa C. Mannion

LAB METHOD SUMMARY

URANIUM, TOTAL IN WATER
KINETIC PHOSPHORIMETRY (KPA)

Client Hanford
Contract No. 630
Contract SDG H2330

RESULTS

LAB	RAW	SUF-		Total
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Uranium
Preparation batch 7078-090				
R309033-01		7581-001	B17HR3	0.125
R309033-02		7581-002	LCS (QC ID=45671)	ok
R309033-03		7581-003	BLK (QC ID=45672)	U
R309033-04		7581-004	Duplicate (R309033-01)	ok

Nominal values and limits from method RDLs (ug/L) 0.10
200-PW-2/200-PW-4 OU-QC Sampling

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	ug/L	L	FAC	TION	%	%	min	keV	KeV	HELD PREPARED	YZED DETECTOR
Preparation batch 7078-090 2σ prep error 9.0 % Reference Lab Notebook 7078 pg. 090													
R309033-01		B17HR3	0.035	0.0200								45 10/17/03 10/17	KPA-001
R309033-02		LCS (QC ID=45671)	0.001	0.0200								10/17/03 10/17	KPA-001
R309033-03		BLK (QC ID=45672)	0.035	0.0200								10/17/03 10/17	KPA-001
R309033-04		Duplicate (R309033-01)	0.035	0.0200								45 10/17/03 10/17	KPA-001
		(QC ID=45673)											

Nominal values and limits from method 0.10 0.0200 180

PROCEDURES REFERENCE UTOT_KPA
CP-044 Sample Preparation for Total Uranium by Kinetic Phosphorimetry, rev 4
CP-928 Total Uranium by Kinetic Phosphorimetry, rev 5

AVERAGES ± 2 SD MDA 0.026 ± 0.034
FOR 4 SAMPLES YIELD _____ ± _____

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 10/25/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2330

Test C Matrix WATER
SDG 7581
Contact Melissa C. Mannion

LAB METHOD SUMMARY CARBON 14 IN WATER LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2330

RESULTS

LAB	RAW	SUF-		
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Carbon 14
Preparation batch 7078-090				
R309033-01		7581-001	B17HR3	U
R309033-02		7581-002	LCS (QC ID=45671)	ok
R309033-03		7581-003	BLK (QC ID=45672)	U
R309033-04		7581-004	Duplicate (R309033-01)	- U
R309033-05		7581-005	Spike (R309033-01)	ok X

Nominal values and limits from method RDLs (pCi/L) 200
200-PW-2/200-PW-4 OU-QC Sampling

METHOD PERFORMANCE

LAB	RAW	SUF-		MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS		ANAL-	
SAMPLE ID	TEST	FIX	CLIENT SAMPLE ID	pCi/L	L	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7078-090 2σ prep error 10.0 % Reference Lab Notebook 7078 pg. 090																
R309033-01			B17HR3	39	0.0300			100		100			35	10/07/03	10/07	LSC-004
R309033-02			LCS (QC ID=45671)	1.2	1.00			100		100				10/07/03	10/07	LSC-004
R309033-03			BLK (QC ID=45672)	1.2	1.00			100		100				10/07/03	10/07	LSC-004
R309033-04			Duplicate (R309033-01)	40,	0.0300			100		100			35	10/07/03	10/07	LSC-004
			(QC ID=45673)													
R309033-05			Spike (R309033-01)	120	0.0200			100		25			36	10/07/03	10/08	LSC-004
			(QC ID=45674)													

Nominal values and limits from method 200 0.0300 50 180

PROCEDURES REFERENCE C14_CHEM_LSC
CP-241 Carbon-14 in Aqueous Samples, rev 4

AVERAGES ± 2 SD MDA 40 ± 97
FOR 5 SAMPLES YIELD 100 ± 0

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 10/25/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2330

Test H Matrix WATER
SDG 7581
Contact Melissa C. Mannion

LAB METHOD SUMMARY TRITIUM IN WATER LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2330

RESULTS

LAB	RAW	SUF-			
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Tritium	
Preparation batch 7078-090					
R309033-01		7581-001	B17HR3	U	
R309033-02		7581-002	LCS (QC ID=45671)	ok	
R309033-03		7581-003	BLK (QC ID=45672)	U	
R309033-04		7581-004	Duplicate (R309033-01)	-	U
R309033-05		7581-005	Spike (R309033-01)	ok	X

Nominal values and limits from method RDLs (pCi/L) 400
200-PW-2/200-PW-4 OU-QC Sampling

METHOD PERFORMANCE

LAB	RAW	SUF-		MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS		ANAL-	
SAMPLE ID	TEST	FIX	CLIENT SAMPLE ID	pCi/L	L	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7078-090 2σ prep error 10.0 % Reference Lab Notebook 7078 pg. 090																
R309033-01			B17HR3	160	0.0100			100		120			37	10/08/03	10/09	LSC-007
R309033-02			LCS (QC ID=45671)	17	1.00			10		120				10/08/03	10/09	LSC-007
R309033-03			BLK (QC ID=45672)	17	1.00			10		120				10/08/03	10/09	LSC-007
R309033-04			Duplicate (R309033-01)	160,	0.0100			100		120			37	10/08/03	10/09	LSC-007
			(QC ID=45673)													
R309033-05			Spike (R309033-01)	160	0.0400			25		120			37	10/08/03	10/09	LSC-007
			(QC ID=45674)													

Nominal values and limits from method 400 0.0100 25 180

PROCEDURES REFERENCE 906.0_H3_LSC
CP-210 Tritium in Water Samples by Distillation, rev 6

AVERAGES ± 2 SD MDA 100 ± 160
FOR 5 SAMPLES YIELD 49 ± 94

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
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Version 3.06
Report date 10/25/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2330

Test NI L Matrix WATER
SDG 7581
Contact Melissa C. Mannion

LAB METHOD SUMMARY NICKEL-63 IN LIQUID LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2330

RESULTS

LAB RAW SUF-
SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Nickel 63

Preparation batch 7078-090

R309033-01	7581-001	B17HR3	U
R309033-02	7581-002	LCS (QC ID=45671)	ok
R309033-03	7581-003	BLK (QC ID=45672)	U
R309033-04	7581-004	Duplicate (R309033-01)	- U

Nominal values and limits from method RDIs (pCi/L) 15
200-PW-2/200-PW-4 OU-QC Sampling

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/L	L	FAC	TION	%	%	min	keV	KeV	HELD PREPARED	YZED DETECTOR

Preparation batch 7078-090 2σ prep error 10.0 % Reference Lab Notebook 7078 pg. 090

R309033-01	B17HR3	2.1	0.500	96	100	45	10/17/03	10/17	LSC-004
R309033-02	LCS (QC ID=45671)	2.4	0.500	96	76		10/17/03	10/17	LSC-004
R309033-03	BLK (QC ID=45672)	2.1	0.500	96	100		10/17/03	10/18	LSC-004
R309033-04	Duplicate (R309033-01) (QC ID=45673)	2.1	0.500	94	100	46	10/17/03	10/18	LSC-004

Nominal values and limits from method 15 0.500 50 180

PROCEDURES REFERENCE N163_LSC
CP-280 Nickel-63 Purification, rev 0

AVERAGES ± 2 SD MDA 2.2 ± 0.30
FOR 4 SAMPLES YIELD 96 ± 2

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
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Form DVD-LMS
Version 3.06
Report date 10/25/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2330

SDG 7581
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2330

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- * LAB SAMPLE ID is the lab's primary identification for a sample.
- * DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- * CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- * QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

- * All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRLNE
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Version Ver 1.0
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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2330

SDG 7581
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2330

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- * The preparation batches are shown in the same order as the Method Summary Reports are printed.
- * Only analyses of planchets relevant to the SDG are included.
- * Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- * The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRINE
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Version Ver 1.0
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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2330

SDG 7581
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2330

WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- * TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- * SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- * The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- * PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- * For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- * The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRLINE
Protocol Hanford
Version Ver 1.0
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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2330

SDG 7581
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2330

DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- * TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- * The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

- * ERRORS can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- * A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- * When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

- U The RESULT is less than the MDA (Minimum Detectable Activity).

REPORT GUIDES

Page 4

SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/25/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2330

SDG 7581
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2330

DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

- J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.
 - B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.
- Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.
- For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.
- L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.
 - H Similar to 'L' except the recovery was high.
 - P The RESULT is 'preliminary'.
 - X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.
 - 2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

- * An MDA is underlined if it is bigger than its RDL.

REPORT GUIDES

Page 5

SUMMARY DATA SECTION

Page 25

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/25/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2330

SDG 7581
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2330

DATA SHEET

- * An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.
- * A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- * When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

REPORT GUIDES

Page 6

SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/25/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2330

SDG 7581
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2330

LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- * An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 1. The error of RESULT, including that introduced by rounding the result prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.
 2. The error of ADDED.
 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits for the recovery.
- * The recovery is underlined if it is outside either of these ranges.

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/25/03

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SAMPLE DELIVERY GROUP H2330

SDG 7581
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2330

DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- * The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTS divided by their average expressed as a percent.

If both RESULTS are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

- * The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTS prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTS. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- * The second limit for the RPD is the larger of:

1. A fixed percentage specified in the protocol.

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/25/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2330

SDG 7581
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2330

DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

- * The RPD is underlined if it is greater than either limit.
- * If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

- * The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/25/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2330

SDG 7581
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2330

MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- * An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

- * The first, computed limits for the recovery reflect:

1. The errors of the two RESULTS, including those introduced by rounding them prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

2. The error of ADDED.

3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

- * The second limits are protocol defined upper and lower QC limits

REPORT GUIDES

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SUMMARY DATA SECTION

Page 30

Lab id EBRINE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/25/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2330

SDG 7581
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2330

MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

- * The recovery is underlined (out of spec) if it is outside either of these ranges.

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/25/03

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SAMPLE DELIVERY GROUP H2330

SDG 7581
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2330

METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

- * Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

- * The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

- * If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- * Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- * Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/25/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2330

SDG 7581
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG_H2330

METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

- * Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
 - * If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.
- MDAs are underlined if greater than the printed RDL.
- * Aliquots are underlined if less than the nominal value specified for the method.
 - * Preparation factors are underlined if greater than the nominal value specified for the method.
 - * Dilution factors are underlined if greater than the nominal value specified for the method.
 - * Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
 - * Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
 - * Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/25/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2330

SDG 7581
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2330

METHOD SUMMARY

- * Count times are underlined if less than the nominal value specified for the method.
- * Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- * Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- * Days Held are underlined if greater than the holding time specified in the protocol.
- * Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1+3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/25/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2330

SDG 7581
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG_H2330

METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

REPORT GUIDES

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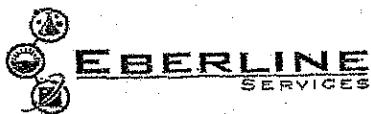
SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/25/03

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						F03-007-020		Page 1 of 2											
Collector Pfister/Pope/Hughes/Johansen		Company Contact LC Hulstrom		Telephone No. 373-3928		Project Coordinator TRENT, SJ		Price Code 7N		Data Turnaround 45 Days											
Project Designation 200-PW-2/200-PW-4 OU - QC Sampling		Sampling Location 200-PW-4/ Retention Basin		H/2330 (7581)		SAF No. F03-007		Air Quality <input type="checkbox"/>													
Ice Chest No. SEE OSC		Field Logbook No. HNF-N-3361		COA 117504ES10		Method of Shipment Federal Express															
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. A030 357				Bill of Lading/Air Bill No. SEE OSC															
POSSIBLE SAMPLE HAZARDS/REMARKS Samples did not originate in radiological controlled area. No total activity associated with sample/samples. Special Handling and/or Storage		Preservation		Cool 4C	Cool 4C	H2SO4 to pH <2 Cool 4C	HCL to pH <2 Cool 4C	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HCL to pH <2	None								
		Type of Container		aG	aG	P	G	P	P	P	P	P	P	P							
		No. of Container(s)		4	2	1	2	1	2	1	1	1	1	1							
		Volume		1000mL	1000mL	1000mL	1000mL	1000mL	1000mL	1000mL	1000mL	1000mL	1000mL	250mL							
SAMPLE ANALYSIS		Pesticides - 8081		Chloro-Herbicides - EPA8151		NO2/NO3 - 353.2; Ammonia - 350.3		Oil & Grease - 413.1		Total Uranium		Strontium-89,90 - Total Sr		Neptunium-237		Nickel-63		Technetium-99		Tritium - H3; Carbon-14	
Sample No.		Matrix *		Sample Date		Sample Time															
B17HR3		WATER		9-2-03		1215															
						</															

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-007-020		Page 2 of 2	
Collector Pfister/Pope/Hughes/Johansen		Company Contact LC Hulstrom		Telephone No. 373-3928		Project Coordinator TRENT, SJ		Price Code 7N Data Turnaround 45 Days	
Project Designation 200-PW-2/200-PW-4 OU - QC Sampling		Sampling Location 200-PW-4/ Retention Basin		H2330 (7581)		SAF No. F03-007		Air Quality <input type="checkbox"/>	
Ice Chest No. SEE OSCP		Field Logbook No. HNF-N-3361		COA 117504ES10		Method of Shipment Federal Express			
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. A030 357		Bill of Lading/Air Bill No. SEE OSCP					
POSSIBLE SAMPLE HAZARDS/REMARKS 9.5.03 Samples did not originate in radiological controlled area. No total activity associated with sample/samples. Special Handling and/or Storage None				Preservation		None			
				Type of Container		P			
				No. of Container(s)		4			
				Volume		1000mL			
SAMPLE ANALYSIS				Iodine-129					
Sample No.		Matrix *		Sample Date		Sample Time			
B17HR3		WATER		9-2-03		1215		X	
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS	
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		Personnel not available to relinquish samples from the 3728 Ref # 3C on 9/5/03	
M. J. Hansen		9-2-03 1300		Ref # 1 MD-021		9-2-03 1300			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
Ref # 1 MD-026		9-4-03 1400		M. J. Hansen		9-4-03 1400			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
M. J. Hansen		9-4-03 1430		Ref # 3C		9-4-03 1430			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		Matrix * S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other	
3C 3728		9.5.03 1000		R. F. Allen		9.5.03 1000			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
R. F. Allen		9.5.03 1000		F. C. Allen					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time			
F. C. Allen		9.5.03 1000		L. C. Allen		9.5.03 1000			
LABORATORY SECTION		Received By		Title		Date/Time			
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time			



RICHMOND, CA LABORATORY
SAMPLE RECEIPT CHECKLIST

Client: FLR Date/Time received 1000 9-8-03

CoC No. F03-007-020

Container I.D. No. ERC-99-058 Requested TAT (Days) 45 P.O. Received Yes ☐ No ☐

INSPECTION

1. Custody seals on shipping container intact? Yes ☒ No ☐ N/A ☐

2. Custody seals on shipping container dated & signed? Yes ☒ No ☐ N/A ☐

3. Custody seals on sample containers intact? Yes ☒ No ☐ N/A ☐

4. Custody seals on sample containers dated & signed? Yes ☒ No ☐ N/A ☐

5. Packing material is: Wet ☐ Dry ☒

6. Number of samples in shipping container: 11

7. Number of containers per sample: 11 (Or see CoC)

8. Samples are in correct container Yes ☐ No ☒

9. Paperwork agrees with samples? Yes ☒ No ☐

10. Samples have: Tape ☐ Hazard labels ☐ Rad labels ☐ Appropriate sample labels ☒

11. Samples are: In good condition ☒ Leaking ☐ Broken Container ☐ Missing ☐

12. Samples are: Preserved ☒ Not preserved ☐ pH 1 Preservative HNO₃/H₂CL

13. Describe any anomalies: 43 IN PLASTIC CONTAINERS

14. Was P.M. notified of any anomalies? Yes ☒ No ☐ Date 9-8-03

15. Received by [Signature] Date: 9-8-03 Time: 1000

Customer Sample No.	cpm	mR/hr	wipe	Customer Sample No.	cpm	mR/hr	wipe

Ion Chamber Ser. No. Calibration date

Alpha Meter Ser. No. Calibration date

Beta/Gamma Meter Ser. No. Calibration date



8 October 2003

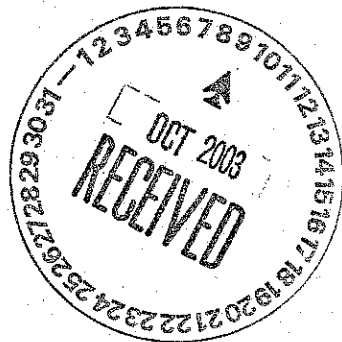
Mr. Steve Trent
Fluor Hanford Inc.
825 Jadwin Ave.
Richland, WA 99352

**Subject: Contract No. 630
Analytical Data Package**

Dear Mr. Trent:

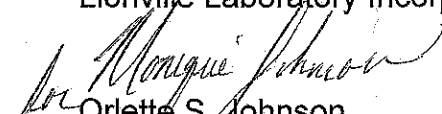
Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0309L403
SDG #	H2330
SAF #	F03-007
Date Received	9-06-03
# Samples	1
Matrix	Water
Volatiles	
Semivolatiles	
Pest/PCB	X
DRO/GRO/KRO	
Herbicides	X
GC Alcohol	
Metals	
Inorganics	X



The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,
Lionville Laboratory Incorporated


Orlette S. Johnson
Project Manager

r:\group\pm\orlette\tnu-hanford\data\fc_ltrs.doc

Lionville Laboratory, Inc.
PEST/PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-007 H2330

DATE RECEIVED: 09/06/03

LVL LOT # :0309L403

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B17HR3	001	W	03LE1095	09/02/03	09/08/03	09/25/03
B17HR3	001 MS	W	03LE1095	09/02/03	09/08/03	09/26/03
B17HR3	001 MSD	W	03LE1095	09/02/03	09/08/03	09/26/03

LAB QC:

PBLKEQ	MB1	W	03LE1095	N/A	09/08/03	09/17/03
PBLKEQ	MB1 BS	W	03LE1095	N/A	09/08/03	09/17/03
PBLKEQ	MB1 BSD	W	03LE1095	N/A	09/08/03	09/17/03





Analytical Report

Client: TNU-HANFORD F03-007
LVL #: 0309L403
SDG/SAF #: H2330/F03-007

W.O. #: 11343-606-001-9999-00
Date Received: 09-06-03

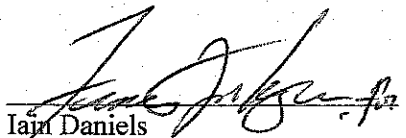
PESTICIDE

One (1) water sample was collected on 09-02-03.

The sample and its associated QC samples were extracted on 09-08-03 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 09-17,25,26-03. The extraction procedure was based on method 3520 and the extracts were analyzed based on method 8081A.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LVL's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. The method blank was below the reporting limits for all target compounds.
4. All surrogate recoveries were within acceptance criteria.
5. All blank spike recoveries were within acceptance criteria.
6. Three (3) of forty (40) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated


Date

pefr:\group\data\pest\tnu hanford\09L-403.pes

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 10 pages.

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 0306-286

Initiator: Byrona Santoro
Date: 9/30/03
Client: TNU

Batch: 0309L403
Samples: MS, MSD
Method: SW846/MCAWW/CLP/

Parameter: 0600SH
Matrix: 9/30/03 Se water
Prep Batch: 03061095

1. Reason for SDR

a. COC Discrepancy ☐ Tech Profile Error ☐ Client Request ☐ Sampler Error on C-O-C
☐ Transcription Error ☐ Wrong Test Code ☐ Other _____

b. General Discrepancy

☐ Missing Sample/Extract* ☐ Container Broken ☐ Wrong Sample Pulled ☐ Label ID's Illegible
☐ Hold Time Exceeded ☐ Insufficient Sample* ☐ Preservation Wrong ☐ Received Past Hold
☐ Improper Bottle Type ☐ Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary)

① High recoveries in MS, MSD. BS and BSD recoveries are within acceptance limits
All samples are clean.

2. Known or Probable Causes(s)

3. Discussion and Proposed Action

Other Description: Narrative

☐ Re-log
☐ Entire Batch
☐ Following Samples: _____
☐ Re-leach
☐ Re-extract
☐ Re-digest
☐ Revise EDD
☐ Change Test Code to _____
☐ Place On/Take Off Hold (circle)

4. Project Manager Instructions...signature/date: [Signature] 9/30/03

☒ Concur with Proposed Action
☐ Disagree with Proposed Action; See Instruction
☐ Include in Case Narrative
☐ Client Contacted:
Date/Person _____
☐ Add
☐ Cancel

5. Final Action...signature/date: [Signature] 9/30/03

Other Explanation:

☐ Verified re-[log][leach][extract][digest][analysis] (circle)
☐ Included in Case Narrative
☐ Hard Copy COC Revised
☐ Electronic COC Revised
☐ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route Distribution of Completed SDR
☐ X Initiator
☒ X Lab General Manager: M. Taylor
☒ X Project Mgr: Stone/Johnson/Haslett
☐ X Technical Mgr: Wesson/Daniels
☐ X QA (file): Alberts
☐ Data Management: Feldman
☐ Sample Prep: Beegle/Kiger

Route Distribution of Completed SDR
☐ Metals: Beegle
☐ Inorganic: Perrone
☐ GC/LC: Kiger
☐ MS: Rychlak/Layman
☐ Log-in: Melnic
☐ Admin: Soos
☐ Other: _____

WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Lionville Labs, Inc.Contract: 1343-06-01Case No.: TNUHANFORD F03-007 H2330RFW Lot No.: 0309L403-001MATRIX Spike - Sample No.: B17HR3Level: (low/med) LOW

COMPOUND	SPIKE ADDED UG/L	SAMPLE CONCENTRATION UG/L	MS CONCENTRATION UG/L	MS % REC #	QC LIMITS REC
Alpha-BHC	0.211	0	0.179	85	70 -130
Beta-BHC	0.211	0	0.168	80	70 -130
Delta-BHC	0.211	0	0.147	70	70 -130
gamma-BHC (Lindane)	0.211	0	0.179	85	56 -127
Heptachlor	0.211	0	0.190	90	50 -129
Aldrin	0.211	0	0.147	70	48 -133
Heptachlor epoxide	0.211	0	0.190	90	70 -130
Endosulfan I	0.211	0	0.274	130	70 -130
Dieldrin	0.211	0	0.200	95	57 -131
4,4'-DDE	0.211	0	0.200	95	70 -130
Endrin	0.211	0	0.253	120	46 -150
Endosulfan II	0.211	0	0.179	85	70 -130
4,4'-DDD	0.211	0	0.168	80	70 -130
Endosulfan sulfate	0.211	0	0.200	95	70 -130
4,4'-DDT	0.211	0	0.190	90	38 -138
Methoxychlor	0.211	0	0.284	135 *	70 -130
Endrin ketone	0.211	0	0.221	105	70 -130
Endrin aldehyde	0.211	0	0.168	80	70 -130
alpha-Chlordane	0.211	0	0.232	110	70 -130
gamma-Chlordane	0.211	0	0.179	85	70 -130

COMPOUND	SPIKE ADDED UG/L	MSD CONCENTRATION UG/L	MSD % REC #	% RPD #	QC LIMITS RPD REC
Alpha-BHC	0.206	0.196	95	11	20 70 -130
Beta-BHC	0.206	0.186	90	11	20 70 -130
Delta-BHC	0.206	0.165	80	13	20 70 -130
gamma-BHC (Lindane)	0.206	0.196	95	11	15 56 -127
Heptachlor	0.206	0.206	100	10	20 50 -129
Aldrin	0.206	0.165	80	13	22 48 -133
Heptachlor epoxide	0.206	0.206	100	10	20 70 -130
Endosulfan I	0.206	0.299	145 *	10	20 70 -130
Dieldrin	0.206	0.227	110	14	18 57 -131
4,4'-DDE	0.206	0.217	105	10	20 70 -130
Endrin	0.206	0.278	135	11	21 46 -150
Endosulfan II	0.206	0.196	95	11	20 70 -130
4,4'-DDD	0.206	0.196	95	17	20 70 -130
Endosulfan sulfate	0.206	0.217	105	10	20 70 -130
4,4'-DDT	0.206	0.206	100	10	27 38 -138
Methoxychlor	0.206	0.309	150 *	10	20 70 -130
Endrin ketone	0.206	0.247	120	13	20 70 -130
Endrin aldehyde	0.206	0.186	90	11	20 70 -130
alpha-Chlordane	0.206	0.247	120	8	20 70 -130
gamma-Chlordane	0.206	0.196	95	11	20 70 -130

Column to be used to flag recovery and RPD values with an asterisk



GLOSSARY OF PESTICIDE/PCB DATA

DATA QUALIFIERS

- U** = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J** = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B** = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E** = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I** = Interference.
- .I** = Indicates an interference on one analytical column only. Result is reported from remaining analytical column.

ABBREVIATIONS

- BS** = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD** = Indicates blank spike duplicate.
- MS** = Indicates matrix spike.
- MSD** = Indicates matrix spike duplicate.
- DL** = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA** = Not Applicable.
- DF** = Dilution Factor.
- NR** = Not Required.

SP = Indicates Spiked Compound.



GLOSSARY OF PESTICIDE/PCB DATA

- P** = This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
- D** = This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- C** = This flag applies to a compound that has been confirmed by GC/MS.

Lionville Laboratory, Inc.
Pesticide/PCBs by GC, CLP List

Report Date: 09/30/03 13:45

RFW Batch Number: 0309L403

Client: TNUHANFORD F03-007 H2330 Work Order: 11343606001 Page: 1

Sample Information	Cust ID:	B17HR3	B17HR3	B17HR3	PBLKEQ	PBLKEQ BS	PBLKEQ BSD
	RFW#:	001	001 MS	001 MSD	03LE1095-MB1	03LE1095-MB1	03LE1095-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate:	Tetrachloro-m-xylene	90 %	80 %	95 %	75 %	75 %	70 %
	Decachlorobiphenyl	100 %	105 %	110 %	80 %	85 %	75 %
=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====							
Alpha-BHC		0.053 U	85 %	95 %	0.050 U	85 %	70 %
Beta-BHC		0.053 U	80 %	90 %	0.050 U	80 %	75 %
Delta-BHC		0.053 U	70 %	80 %	0.050 U	100 %	95 %
gamma-BHC (Lindane)		0.053 U	85 %	95 %	0.050 U	70 %	65 %
Heptachlor		0.053 U	90 %	100 %	0.050 U	80 %	75 %
Aldrin		0.053 U	70 %	80 %	0.050 U	80 %	75 %
Heptachlor epoxide		0.053 U	90 %	100 %	0.050 U	75 %	70 %
Endosulfan I		0.053 U	130 %	145 * %	0.050 U	80 %	80 %
Dieldrin		0.11 U	95 %	110 %	0.10 U	75 %	70 %
4,4'-DDE		0.11 U	95 %	105 %	0.10 U	75 %	70 %
Endrin		0.11 U	120 %	135 %	0.10 U	95 %	90 %
Endosulfan II		0.11 U	85 %	95 %	0.10 U	70 %	70 %
4,4'-DDD		0.11 U	80 %	95 %	0.10 U	70 %	100 %
Endosulfan sulfate		0.11 U	95 %	105 %	0.10 U	75 %	70 %
4,4'-DDT		0.11 U	90 %	100 %	0.10 U	60 %	55 %
Methoxychlor		0.53 U	135 * %	150 * %	0.50 U	90 %	85 %
Endrin ketone		0.11 U	105 %	120 %	0.10 U	75 %	75 %
Endrin aldehyde		0.11 U	80 %	90 %	0.10 U	85 %	90 %
alpha-Chlordane		0.053 U	110 %	120 %	0.050 U	85 %	85 %
gamma-Chlordane		0.053 U	85 %	95 %	0.050 U	75 %	70 %
Toxaphene		5.3 U	5.3 U	5.2 U	5.0 U	5.0 U	5.0 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Handwritten signature/initials

A-D E F

G - 14

79149192 7044

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						F03-007-020		Page 1 of 4					
Collector Pfister/Pope/Hughes/Johansen		Company Contact LC Hulstrom		Telephone No. 373-3928		Project Coordinator TRENT, SJ		Price Code 7N		Data Turnaround 45 Days					
Project Designation 200-PW-2/200-PW-4 OU - QC Sampling		Sampling Location 200-PW-4/ Retention Basin				SAF No. F03-007		Air Quality <input type="checkbox"/>							
Ice Chest No.		Field Logbook No. HNF-N-3361		COA 117504ES10		Method of Shipment Federal Express									
Shipped To EDERLINE SERVICES (Formerly TMA) <i>SEE OSR</i>		Offsite Property No. <i>#030346</i>				Bill of Lading/Air Bill No. <i>SEE OSR</i>									
POSSIBLE SAMPLE HAZARDS/REMARKS Samples did not originate in radiological controlled area. No total activity associated with sample/samples. Special Handling and/or Storage <i>Cool 4°C</i>				Preservation	Cool 4C	Cool 4C	H2SO4 to pH <2 Cool 4C	HCL to pH <2 Cool 4C	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HCL to pH <2	None	
				Type of Container	aG	aG	P	G	P	P	P	P	P	P	P
				No. of Container(s)	4	2	1	2	1	2	1	1	1	1	1
				Volume	1000mL	1000mL	1000mL	1000mL	125mL	1000mL	1000mL	1000mL	250mL	250mL	
SAMPLE ANALYSIS				Pesticides - 8081	Chloro-Herbicides - EPA8151	NO2/NO3 - 353.2; Ammonia - 350.3	Oil & Grease - 413.1	Total Uranium	Strontium-89,90 - Total Sr	Neptunium-237	Nickel-63	Technetium-99	Tritium - H3; Carbon-14		
				<i>ASL 9-2-03</i>											
Sample No.	Matrix *	Sample Date	Sample Time												
B17HR3	WATER	9-2-03	1215	X	X	X	X								
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS						Matrix *					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		Personnel not available to relinquish samples from the 3728 Ref # <i>3C</i> on <i>9/5/03</i>				S=Soil SE=Settlement SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other			
<i>Thad Hansen</i>		<i>9-2-03 1300</i>		<i>Ref #1 mo-020</i>		<i>9-2-03 1300</i>									
<i>Ref #1 mo-020</i>		<i>9-4-03 1400</i>		<i>Thad Hansen</i>		<i>9-4-03 1400</i>									
<i>Thad Hansen</i>		<i>9-4-03 1400</i>		<i>Ref #3C</i>		<i>9-4-03 1430</i>									
<i>3C 3728</i>		<i>9-5-03 1000</i>		<i>R. F. Hill</i>		<i>9-5-03 1000</i>									
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time									
<i>R. F. Hill</i>		<i>9-5-03 1000</i>		<i>F. Hill</i>		<i>9-5-03 1000</i>									
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time									
<i>Ref #1</i>		<i>9-6-03 1025</i>		<i>Ref #1</i>		<i>9-6-03 1025</i>									
LABORATORY SECTION		Received By		Title		Date/Time									
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By						Date/Time					

LIONVILLE LABORATORY INCORPORATED

SAMPLE RECEIPT CHECKLIST

CLIENT: TNU Handford

Purchase Order/Project:

DATE: 9.6.03

AF# / SOW# / Release #: F03-007

Laboratory SDG #: 0309L403

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

1. Custody seals on coolers or shipping container intact, signed and dated?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
2. Outside of coolers or shipping containers are free from damage?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
3. Airbill # recorded?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
5. Sample containers are intact?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
6. Custody seals on sample containers intact, signed and dated?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
7. All samples on coc received?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
8. All sample label information matches coc?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
10. Shipment meets LVLJ Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
11. Where applicable, bar code labels are affixed to coc?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
12. coc signed and dated?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
13. coc will be faxed or emailed to client?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
14. Project Manager/Client contacted concerning discrepancies? (name/date)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> see Comment #

Cooler # / temp (°C) and Comments:

Ere 96-061 / 1.3°

Laboratory Sample Custodian:

El Jmoun

Laboratory Project Manager:

Lionville Laboratory, Inc.
HBGX ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-007 H2330

DATE RECEIVED: 09/06/03

LVL LOT # :0309L403

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B17HR3	001	W	03LE1098	09/02/03	09/08/03	09/22/03
B17HR3	001 MS	W	03LE1098	09/02/03	09/08/03	09/22/03
B17HR3	001 MSD	W	03LE1098	09/02/03	09/08/03	09/22/03

LAB QC:

PBLKFB	MB1	W	03LE1098	N/A	09/08/03	09/22/03
PBLKFB	MB1 BS	W	03LE1098	N/A	09/08/03	09/22/03

Handwritten signature/initials





Analytical Report

Client: TNU HANFORD F03-007

W.O.#: 11343-606-001-9999-00

LVL#: 0309L403

Date Received: 09-06-03

SDG/SAF#: H2330/F03-007

HERBICIDE

One (1) soil sample was collected on 09-02-03.

The sample and its associated QC samples were extracted on 09-08-03 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 09-22-03. The extraction and analysis procedure was based on method 8151A.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LVL's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. The method blank was below the reporting limits for all target compounds.
4. Two (2) of five (5) surrogate recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
5. All blank spike recoveries were within acceptance criteria.
6. Four (4) of sixteen (16) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. To the best of my knowledge, this data report is in compliance with the terms and conditions of the purchase order, both technically and for completeness, for other than the conditions detailed in the case narrative. Release of the data contained in this hard copy data package and in the electronic data submitted on diskette has been authorized by the cognizant laboratory manager or his/her designee to be accurate as verified by the following signature.


Iain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

pefr:\group\data\herb\tnu\09L-403.doc


Date

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 9 pages.

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 0360381

Initiator: John Lach
Date: 9/25/08
Client: JW

Batch: 03092409
Samples: 154T
Method: SW846/MCAWW/CLP/

Parameter: 146 h.c. 2p
Matrix: Soil Water
Prep Batch: 03213 1058

1. Reason for SDR

a. COC Discrepancy ☐ Tech Profile Error ☐ Client Request ☐ Sampler Error on C-O-C
☐ Transcription Error ☐ Wrong Test Code ☐ Other _____

b. General Discrepancy

☐ Missing Sample/Extract* ☐ Container Broken ☐ Wrong Sample Pulled ☐ Label ID's Illegible
☐ Hold Time Exceeded ☐ Insufficient Sample* ☐ Preservation Wrong ☐ Received Past Hold
☐ Improper Bottle Type ☐ Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary)

matrix spike & duplicate surrogates increased, spikes increased
MS MSD L.A.T. MS MSD L.A.T.
DCAA 167% 152% 150% 245T 144% 145% 134%
DCAA 0% 151 150
DCAA 0% 152 150

2. Known or Probable Causes(s)

3. Discussion and Proposed Action

☐ Re-log
☐ Entire Batch
☐ Following Samples: _____
☐ Re-leach
☐ Re-extract
☐ Re-digest
☐ Revise EDD
☐ Change Test Code to _____
☐ Place On/Take Off Hold (circle)

Other Description:

Matrix there is no impact to the
data. The blank spike is in control
and there are no hits in the samples

4. Project Manager Instructions...signature/date: [Signature] 9/29/08

☒ Concur with Proposed Action
☐ Disagree with Proposed Action; See Instruction
☐ Include in Case Narrative
☐ Client Contacted:
Date/Person _____
Add
☐ Cancel

5. Final Action...signature/date: [Signature] 9/29/08

Other Explanation:

☐ Verified re-[log][leach][extract][digest][analysis] (circle)
☒ Included in Case Narrative
☐ Hard Copy COC Revised
☐ Electronic COC Revised
☐ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route Distribution of Completed SDR
☒ X Initiator
☒ X Lab General Manager: M. Taylor
☒ X Project Mgr: Stone/Johnson/Haslett
☒ X Technical Mgr: Wesson/Daniels
☒ X QA (file): Alberts
☐ Data Management: Feldman
☐ Sample Prep: Beegle/Kiger

Route Distribution of Completed SDR
☐ Metals: Beegle
☐ Inorganic: Perrone
☐ GC/LC: Kiger
☐ MS: Rychlak/Layman
☐ Log-in: Melnic
☐ Admin: Soos
☐ Other: _____



GLOSSARY OF HERBICIDE DATA

DATA QUALIFIERS

- J** = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J** = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B** = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E** = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I** = Interference.

ABBREVIATIONS

- BS** = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD** = Indicates blank spike duplicate.
- MS** = Indicates matrix spike.
- MSD** = Indicates matrix spike duplicate.
- DL** = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA** = Not Applicable.
- DF** = Dilution Factor.
- NR** = Not Required.
- SP** = Indicates Spiked Compound.



GLOSSARY OF HERBICIDE DATA

= This flag is used for an Herbicide target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

= This flag identifies all compounds identified in an analysis at a secondary dilution factor.

= This flag applies to a compound that has been confirmed by HPLC.

Lionville Laboratory, Inc.

Herbicides, Special List

Report Date: 09/24/03 08:57

RFW Batch Number: 0309L403

Client: TNUHANFORD F03-007 H2330 Work Order: 11343606001 Page: 1

	Cust ID:	B17HR3	B17HR3	B17HR3	PBLKFB	PBLKFB BS
Sample	RFW#:	001	001 MS	001 MSD	03LE1098-MB1	03LE1098-MB1
Information	Matrix:	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L
Surrogate:	DCAA	132 %	167 * %	182 * %	114 %	123 %
		fl	fl	fl	fl	fl
Dalapon		50 U	116 %	124 %	50 U	80 %
Dicamba		20 U	145 %	150 %	20 U	97 %
Dichloroprop		50 U	133 %	152 * %	50 U	97 %
2,4-D		10 U	137 %	154 %	10 U	94 %
2,4,5-TP (Silvex)		5.0 U	142 %	148 %	5.0 U	93 %
2,4,5-T		5.0 U	144 * %	149 * %	5.0 U	98 %
2,4-DB		50 U	141 %	155 %	50 U	97 %
Dinoseb		5.0 U	113 %	114 %	5.0 U	72 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

8/24/03

G - H. F.

[illegible]

FH-Central Plateau Project				CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST								F03-007-020		Page 1 of 4									
Collector Pfister/Pope/Hughes/Johansen				Company Contact LC Hulstrom				Telephone No. 373-3928				Project Coordinator TRENT, SJ		Price Code 7N		Data Turnaround 45 Days							
Project Designation 200-PW-2/200-PW-4 OU - QC Sampling				Sampling Location 200-PW-4/ Retention Basin				SAF No. F03-007				Air Quality <input type="checkbox"/>											
Ice Chest No. SEE OSL				Field Logbook No. HNF-N-3361				COA 117504ES10				Method of Shipment Federal Express											
Shipped To ASL 9-2-03 EDERLINE SERVICES (Formerly TMA) RELRA				Offsite Property No. #030346				Bill of Lading/Air Bill No. SEE OSL															
POSSIBLE SAMPLE HAZARDS/REMARKS Samples did not originate in radiological controlled area. No total activity associated with sample/samples. Special Handling and/or Storage cool 4°C				Preservation		Cool 4C	Cool 4C	H2SO4 to pH <2 Cool 4C	HCL to pH <2 Cool 4C	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HCL to pH <2	None								
				Type of Container		aG	aG	P	G	P	P	P	P	P	P								
				No. of Container(s)		4	2	1	2	1	2	1	1	1	1								
				Volume		1000mL	1000mL	1000mL	1000mL	125mL	1000mL	1000mL	1000mL	250mL	250mL								
SAMPLE ANALYSIS				Pesticides - 8081		Chloro-Herbicides - EPA8151		NO2/NO3 - 353.2; Ammonia - 350.3		Oil & Grease - 413.1		Total Uranium		Strontium-89,90 -- Total Sr		Neptunium-237		Nickel-63		Technetium-99		Tritium - H3; Carbon-14	
Sample No.		Matrix *		Sample Date		Sample Time																	
B17HR3		WATER		9-2-03		1215		+		+		+		+									
CHAIN OF POSSESSION												SPECIAL INSTRUCTIONS											
Relinquished By/Removed From Thornhansen 9-2-03 1300 Ref # 1 mo-020 9-2-03 Relinquished By/Removed From Thornhansen 9-4-03 1400 Ref # 3C 9-4-03 1400 Relinquished By/Removed From Thornhansen 9-4-03 1430 Ref # 3C 9-4-03 1430 Relinquished By/Removed From SC 3728 9-5-03 1000 Ref # 3C 9-5-03 1000 Relinquished By/Removed From SC 3728 9-5-03 1000 Ref # 3C 9-5-03 1000 Relinquished By/Removed From SC 3728 9-5-03 1000 Ref # 3C 9-5-03 1000												Received By/Stored In Ref # 1 mo-020 9-2-03 1300 Received By/Stored In Thornhansen 9-4-03 1400 Received By/Stored In Ref # 3C 9-4-03 1430 Received By/Stored In SC 3728 9-5-03 1000 Received By/Stored In SC 3728 9-5-03 1000 Received By/Stored In SC 3728 9-5-03 1000											
Relinquished By/Removed From SC 3728 9-6-03 1025 Ref # 3C 9-6-03 1025												Received By/Stored In SC 3728 9-6-03 1025 Ref # 3C 9-6-03 1025											
LABORATORY SECTION Received By Title Date/Time												Matrix * S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WL=Wipe L=Liquid V=Vegetation X=Other											
FINAL SAMPLE DISPOSITION Disposal Method Disposed By Date/Time																							

LIONVILLE LABORATORY INCORPORATED

SAMPLE RECEIPT CHECKLIST

CLIENT: Tnu Hand

Purchase Order/Project:

DATE: 9.6.03

AF# / SOW# / Release #: F03-007

Laboratory SDG #:

0309L403

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

1. Custody seals on coolers or shipping container intact, signed and dated?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
2. Outside of coolers or shipping containers are free from damage?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
3. Airbill # recorded?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
5. Sample containers are intact?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
6. Custody seals on sample containers intact, signed and dated?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
7. All samples on coc received?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
8. All sample label information matches coc?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
10. Shipment meets LVL Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
11. Where applicable, bar code labels are affixed to coc?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
12. coc signed and dated?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
13. coc will be faxed or emailed to client?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
14. Project Manager/Client contacted concerning discrepancies? (name/date)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> see Comment #

Cooler # / temp (°C) and Comments:

Ere 96-061 / 1.3°

Laboratory Sample Custodian:

Al Green

Laboratory Project Manager:

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F03-007 H2330

DATE RECEIVED: 09/06/03

LVL LOT # :0309L403

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B17HR3						
NITRATE NITRITE	001	W	03LN3054	09/02/03	09/22/03	09/22/03
NITRATE NITRITE	001 REP	W	03LN3054	09/02/03	09/22/03	09/22/03
NITRATE NITRITE	001 MS	W	03LN3054	09/02/03	09/22/03	09/22/03
AMMONIA	001	W	03LAM023	09/02/03	09/09/03	09/09/03
AMMONIA	001 REP	W	03LAM023	09/02/03	09/09/03	09/09/03
AMMONIA	001 MS	W	03LAM023	09/02/03	09/09/03	09/09/03
OIL & GREASE BY GRAV	001	W	03LOG041	09/02/03	09/09/03	09/10/03
OIL AND GREASE BY GR	001 MS	W	03LOG041	09/02/03	09/09/03	09/10/03

LAB QC:

NITRATE NITRITE	MB1	W	03LN3054	N/A	09/22/03	09/22/03
NITRATE NITRITE	MB1 BS	W	03LN3054	N/A	09/22/03	09/22/03
AMMONIA	MB1	W	03LAM023	N/A	09/09/03	09/09/03
AMMONIA	MB1 BS	W	03LAM023	N/A	09/09/03	09/09/03
AMMONIA	MB1 BSD	W	03LAM023	N/A	09/09/03	09/09/03
OIL & GREASE BY GRAV	MB1	W	03LOG041	N/A	09/09/03	09/10/03
OIL AND GREASE BY GR	MB1 BS	W	03LOG041	N/A	09/09/03	09/10/03





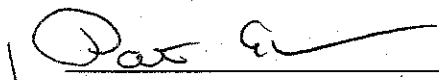
Analytical Report

Client: TNU-HANFORD F03-007 H2330
LVL#: 0309L403

W.O.#: 11343-601-001-9999-00
Date Received: 09-06-03

INORGANIC NARRATIVE

1. This narrative covers the analyses of 1 water sample.
2. The sample was prepared and analyzed in accordance with the methods checked on the attached glossary.
3. Sample holding times as required by the method and/or contract were met.
4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.
5. The method blanks were within the method criteria.
6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS for Ammonia was within the 20% Relative Percent Difference (RPD) control limit.
7. The matrix spike recoveries for Nitrate Nitrite, Ammonia and Oil and Grease were within the 75-125% control limits.
8. The replicate analyses for Nitrate Nitrite and Ammonia were within the 20% RPD control limit.
9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

npl09-403

09-25-03
Date

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 12 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR WATER SAMPLE ANALYSIS

	<u>EPA /600</u>	<u>SW846</u>	<u>OTHER</u>
Acidity	305.1		
___ Alkalinity ___ Bicarbonate ___ Carbonate	310.1		
BOD	405.1		5210B (b)
Ion Chromatography:			
___ Bromide ___ Chloride ___ Fluoride	300.0	9056	
___ Nitrate ___ Nitrite ___ Phosphate	300.0	9056	
___ Sulfate ___ Formate ___ Acetate ___ Oxalate	300.0	9056	
Chloride	325.2	9251	
Chlorine, Residual	330.5 (mod)		
Cyanide, Amenable to Chlorination	335.2	9010B	
Cyanide, Total	335.2	9010B	9014 ILMO4.0 (e)
Cyanide, Weak Acid Dissociable			412 (a) 4500CN-I (b)
COD	410.4(mod)		5220C (b)
Color	110.2		
Corrosivity by Coupon		1110(mod)	
Chromium VI		7196A	3500Cr-D (b)
Fluoride	340.2		4500-FC
Hardness, Calcium	215.2		
Hardness, Total	130.2		
Iodide			ASTM D19P202 (1)
Surfactant	425.1		
✓ Nitrate-Nitrite ___ Nitrate ___ Nitrite	✓ 353.2		
Ammonia	✓ 350.3		
Total ___ Kjeldahl ___ Organic Nitrogen	351.3		
Total ___ Organic ___ Inorganic Carbon	415.1	9060	
Oil & Grease	413.1	9070	
___ pH ___ pH; paper	150.1	9040B 9041A	
Petroleum Hydrocarbons, Total Recoverable	418.1		
Phenol	420.1	420.2 9065 9066	
___ Ortho ___ Total Phosphate	365.2		4500-P B C
Salinity			210A (a) 2520 (b)
Settleable Solids	160.5		
Sulfide	376.1	9030B/9034 (acid soluble)	
Reactive ___ Cyanide ___ Sulfide		Section 7.3 (9014 9030B)	
Silica	370.1		
Sulfite	377.1		
Sulfate	375.4	9038	
Specific Conductance	120.1	9050A	
Specific Gravity			D5057-90 213E (a)
Synthetic Precipitation Leach		1312	
Total ___ Dissolved ___ Suspended ___ Solids	160 ___ .1 ___ .2 ___ .3		
Total Organic Halides	450.1	9020B	
Turbidity	180.1		
Volatile Solids:			
___ Total ___ Dissolved ___ Suspended	160.4		
Other:		Method:	

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.
2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).
3. Test Methods for Evaluating Solid Waste (USEPA SW-846).
 - a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).
 - b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).
 - c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).
 - d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).
 - e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.
 - f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/24/03

CLIENT: TNUHANFORD F03-007 H2330
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0309L403

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B17HR3	Nitrate Nitrite	0.020u	MG/L	0.020	1.0
		Ammonia, as N	0.10 u	MG/L	0.10	1.0
		Oil & Grease Gravimetri	1.1 u	MG/L	1.1	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 09/24/03

CLIENT: TNUHANFORD F03-007 H2330
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0309L403

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK10	03LN3054-MB1	Nitrate Nitrite	0.020u	MG/L	0.020	1.0
BLANK10	03LAM023-MB1	Ammonia, as N	0.10 u	MG/L	0.10	1.0
BLANK10	03LOG041-MB1	Oil & Grease Gravimetri	1.0 u	MG/L	1.0	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 09/24/03

CLIENT: TNUHANFORD F03-007 H2330
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0309L403

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B17HR3	Nitrate Nitrite	0.47	0.02u	0.50	94.2	1.0
		Ammonia, as N	2.1	0.10u	2.0	103.0	1.0
		Oil & Grease Gravimetr	39.4	1.1 u	46.1	85.5	1.0
BLANK10	03LN3054-MB1	Nitrate Nitrite	0.51	0.02u	0.50	101.8	1.0
BLANK10	03LAM023-MB1	Ammonia, as N	1.9	0.10u	2.0	96.0	1.0
		Ammonia, as N MSD	1.9	0.10u	2.0	94.5	1.0
BLANK10	03LOG041-MB1	Oil & Grease Gravimetr	45.2	1.0 u	46.5	97.2	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 09/24/03

CLIENT: TNUHANFORD P03-007 H2330
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0309L403

SAMPLE	SITE ID	ANALYTE	SPIKE#1	SPIKE#2	%DIFF
			%RECOV	%RECOV	
BLANK10	03LAN023-MB1	Ammonia, as N	96.0	94.5	1.6

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 09/24/03

CLIENT: TNUHANFORD F03-007 H2330
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0309L403

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
=====	=====	=====	=====	=====	=====	=====
-001REP	B17HR3	Nitrate Nitrite	0.02u	0.02u	NC	1.0
		Ammonia, as N	0.10u	0.10u	NC	1.0

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

0309L403

A-D E,F

G - H, I

Client TNU-Hanford F03-007

Est. Final Proj. Sampling Date

Project # 11343-606-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager Debbie JohnsonQC SPEC Del STD TAT 30 daysDate Rec'd 9-6-03Date Due 10-6-03

Refrigerator #

#/Type Container

Liquid

Solid

Volume

Liquid

Solid

Preservatives

ANALYSES
REQUESTED

ORGANIC

VOA

BNA

Pest/

PGB

Herb.

INORG

Metal

CN

W02,

W03

NH3

O2 +

Grease

MATRIX
CODES:

S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum
Solids
DL - Drum
Liquids
L - EP/TCLP
Leachate
WI - Wipe
X - Other
F - Fish

Lab
ID

Client ID/Description

Matrix
QC
Chosen
(✓)

MS

MSD

Matrix

Date
CollectedTime
Collected

Lionville Laboratory Use Only

H08H

OHBGX

IN3N2

IN4N3

IOGGR

001

B17HR3

X

X

W

9-2-03

1215

X

X

X

X

X

Special Instructions:

SAF # F03-007

DATE/REVISIONS:

1.

2.

3.

4.

5.

6.

Lionville Laboratory Use Only

Samples were: ✓

1) Shipped ☒ or
Hand Delivered ☐
Airbill #

2) Ambient or Chilled ☒

3) Received in Good
Condition ☒ or N

4) Samples Properly Preserved ☒ or N

5) Received Within
Holding Times ☒ or N

Tamper Resistant Seal was:

1) Present on Outer
Package ☒ or N

2) Unbroken on Outer
Package ☒ or N

3) Present on Sample
☒ or N

4) Unbroken on
Sample ☒ or N

COC Record Present
Upon Sample Rec't
☒ or N

Cooler
Temp. 1.3 °C

Relinquished
byReceived
by

Date

Time

Relinquished
byReceived
by

Date

Time

"COMPOSITE
WASTE"

ORIGINAL
REWRITTEN

Discrepancies Between
Samples Labels and
COC Record? Y or ☒ N
NOTES:

79149192 7044

FH-Central Plateau Project				CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST								F03-007-020		Page 1 of 2			
Collector Pfister/Pope/Hughes/Johansen				Company Contact LC Hulstrom				Telephone No. 373-3928				Project Coordinator TRENT, SJ		Price Code 7N		Data Turnaround 45 Days	
Project Designation 200-PW-2/200-PW-4 OU - QC Sampling				Sampling Location 200-PW-4/ Retention Basin				SAF No. F03-007				Air Quality <input type="checkbox"/>					
Ice Chest No. <i>SEE OSR</i>				Field Logbook No. HNF-N-3361				COA 117504ES10				Method of Shipment Federal Express					
Shipped To <i>ASR 9-2-03</i> EDERLINE SERVICES (Formerly TMA) <i>RECLA</i>				Offsite Property No. <i>H030346</i>				Bill of Lading/Air Bill No. <i>SEE OSR</i>									
POSSIBLE SAMPLE HAZARDS/REMARKS Samples did not originate in radiological controlled area. No total activity associated with sample/samples. Special Handling and/or Storage <i>cool 4°C</i>				Preservation		Cool 4C	Cool 4C	H2SO4 to pH <2 Cool 4C	HCL to pH <2 Cool 4C	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HCL to pH <2	None		
				Type of Container		aG	aG	P	G	P	P	P	P	P	P		
				No. of Container(s)		4	2	1	2	1	2	1	1	1	1		
				Volume		1000mL	1000mL	1000mL	1000mL	125mL	1000mL	1000mL	1000mL	250mL	250mL		
SAMPLE ANALYSIS				Pesticides - 8081	Chloro-Herbicides - EPA8151	NO2/NO3 - 353.2; Ammonia - 350.3	Oil & Grease - 413.1	Total Uranium	Strontium-89,90 -- Total Sr	Neptunium-237	Nickel-63	Technetium-99	Tritium - H3; Carbon-14				
				<i>ASR 9-2-03</i>													
Sample No.	Matrix *	Sample Date	Sample Time														
B17HR3	WATER	9-2-03	1215	X	X	X	X										
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS						Matrix *			
Relinquished By/Removed From <i>Thad Hansen 9-2-03</i>				Received By/Stored In <i>Ref # 1 mo-020 9-2-03</i>				Personnel not available to relinquish samples from the 3728 Ref # <i>3C</i> on <i>9-15-03</i>						S=Soil SE=Sediment SO=Solid Sl=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WL=Wipe L=Liquid V=Vegetation X=Other			
Relinquished By/Removed From <i>Ref # 1 mo-020 9-4-03 1400</i>				Received By/Stored In <i>Thad Hansen 9-4-03</i>													
Relinquished By/Removed From <i>Thad Hansen 9-4-03</i>				Received By/Stored In <i>Ref # 3C 9-4-03 1430</i>													
Relinquished By/Removed From <i>3C 3728 9-5-03 1000</i>				Received By/Stored In <i>R. Seel R. F. H. 9-5-03</i>													
Relinquished By/Removed From <i>R. Seel R. F. H. 9-5-03</i>				Received By/Stored In <i>F. L. E. x</i>													
Relinquished By/Removed From <i>ASR 9-6-03 1025</i>				Received By/Stored In <i>ASR 9-6-03 1025</i>													
LABORATORY SECTION		Received By		Title										Date/Time			
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By										Date/Time			

LIONVILLE LABORATORY INCORPORATED

SAMPLE RECEIPT CHECKLIST

CLIENT: TNU Handled

Purchase Order/Project:

DATE: 9.6.03

AF# / SOW# / Release #: F03-007

Laboratory SDG #: 0309L403

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

1. Custody seals on coolers or shipping container intact, signed and dated?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
2. Outside of coolers or shipping containers are free from damage?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
3. Airbill # recorded?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
5. Sample containers are intact?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
6. Custody seals on sample containers intact, signed and dated?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
7. All samples on coc received?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
8. All sample label information matches coc?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
10. Shipment meets LVLJ Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
11. Where applicable, bar code labels are affixed to coc?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
12. coc signed and dated?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
13. coc will be faxed or emailed to client?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	<input type="checkbox"/> see Comment #
14. Project Manager/Client contacted concerning discrepancies? (name/date)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> see Comment #

Cooler # / temp (°C) and Comments:

ERC 96-061 / 1.3°

Laboratory Sample Custodian:

El Jm...

Laboratory Project Manager: